

# MISCELLANEOUS PAPERS

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Centre for Entomological Studies Ankara

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No 180

11 February 2019

ISSN 1015-8235

<http://zoobank.org/References/96C96967-E887-453A-97CF-7DCEA40D2299>

## Sarcophagidae (Diptera) from Transcarpathian Ukraine

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**Abstract:** Sarcophagidae (Diptera) from Transcarpathian Ukraine. Centr. Ent. Stud., Misc. Pap. 180: 1-7, 1 Table.

A total list of 42 species of Sarcophagidae from Borzhava locality is given. One species (*Blaesoxipha ungulata*) is firstly recorded for Ukrainian Zakarpattia, and 11 species (*Metopia argentata*, *M. argyrocephala*, *M. grandii*, *Brachicoma devia*, *Blaesoxipha ungulata*, *Servaisia rossica*, *Ravinia pernix*, *Helicophagella rosellei*, *Myorhina soror*, *Robineauella caerulescens*, and *Sarcophaga lehmanni*) are firstly registered in Borzhava locality. 78 species of sarcophagids are known for Ukrainian Zakarpattia in general. This number is not less than 70-80% of full regional species list.

**Key words:** flies, Sarcophagidae, fauna, Transcarpathian Ukraine, Borzhava

Altogether 180 species of Sarcophagidae have been reported from the Ukraine (Verves & Khrokalo, 2018). Regional faunas of Western Ukraine are not studied in detail. 78 species of those flies are known for Transcarpathian Ukraine (Zakarpattia) (Khitsova, 1976; Logoida, 1978; Moskaletz, 1960; Povolný & Verves 1986, 1997; Staněk, 1974; Verves, 1974, 1984, 1989, 1998, 2014; Verves & Khrokalo, 2006, 2014a, b, 2018; Verves & Radchenko, 2017, and present data). This number is not less than 70-80% of full regional species list.

### Material and methods

The faunistic data are the results of field collections of both authors (08.-26.08.2016 (Verves & Khrokalo, 2018) and 03.-19.07.2018, original data) in West Ukraine, Zakarpattia, Irshava district, Sanatorium "Borzhava" territory, 48°22' N, 23°17'E, 160-220 m a. s. l., at hygro- and mesophytic meadows with bushes; at decorative flowerind herbaceous plants; in 50-year old park, are present (table 1). The genera and subgenera of Sarcophagidae are given after modern system (Povolný & Verves 1997; Verves, 1986, 1989; Verves & Khrokalo, 2006). 1039 specimens 456 in 2016 and 583 in 2018) from 42 species were collected by entomological net and identified after reliable keys (Povolný & Verves 1986, 1997; Rohdendorf, 1970; Verves, 1979, 1982, 1985, 1993, Verves & Khrokalo, 2006, Zerova et al., 2006).

### Results

As a results of faunistic studies in 2018, two species, *Metopia argentata* Macquart, 1850 and *Blaesoxipha ungulata* (Pandellé, 1896) are firstly recorded from Zakarpattia region, and 11 species,

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*Metopia argentata* Macquart, 1850, *M. argyrocephala* Meigen, 1824, *M. grandii* Venturi, 1953, *Brachicoma devia* (Fallén, 1820), *Blaesoxipha ungulata* (Pandellé, 1896), *Servaisia* (s. str.) *rossica* (Villeneuve, 1912), *Ravinia pernix* (Harris, 1780), *Helicophagella* (s. str.) *rosellei* (Böttcher, 1912), *Myorhina* (s. str.) *soror* (Rondani, 1860), *Robineauella* (s. str.) *caerulescens* (Zetterstedt, 1838), and *Sarcophaga lehmanni* Müller, 1922, are new for Borzhava locality.

Total list of 78 species of calliphorids from Zakarpattia region composed as a result of our own collections and analysis of literature data is such:

1. *Macronychia* (s. str.) *striginervis* (Zetterstedt, 1838). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2006, 2014a).
2. *M. (M.) griseola* (Fallén, 1820). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2006, 2014a).
3. *M. (M.) polyodon* (Meigen, 1824). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2006, 2014a): Irshava district, Borzhava locality (Verves & Khrokalo, 2018).
4. *Senotainia* (*Arrenopus*) *albifrons* (Rondani, 1859). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a).
5. *S. (s. str.) conica* (Fallén, 1810). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a): Irshava district, Borzhava locality (Verves & Khrokalo, 2018, and present data).
6. *Pterella grisea* (Meigen, 1824). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a).
7. *Miltogramma brevipila* Villeneuve, 1911. Zakarpattia (Verves & Khrokalo, 2018).
8. *Metopia argentata* Macquart, 1850. Zakarpattia: Irshava district, Borzhava locality (present data; firstly recorded for Ukrainian Zakarpattia).
9. *M. argyrocephala* Meigen, 1824. Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a).
10. *M. campestris* (Fallén, 1810). Zakarpattia: Irshava district, Borzhava locality (Verves & Khrokalo, 2018).
11. *M. grandii* Venturi, 1953. Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a): Borzhava locality (present data).
12. *M. staegeri* Rondani, 1859. Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a).
13. *Hilarella hilarella* (Zetterstedt, 1844). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a).
14. *Taxigramma heteroneura* (Meigen, 1830). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a): Irshava district, Borzhava locality (Verves & Khrokalo, 2018, and present data).
15. *Nyctia halterata* (Panzer, 1798). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a).
16. *Agria affinis* (Fallén, 1817). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a).
17. *A. mamillata* (Pandellé, 1896). Zakarpattia (Verves, 1982; Verves & Khrokalo, 2014a).
18. *Brachicoma devia* (Fallén, 1820). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a): Irshava district, Borzhava locality (present data); Mukacheve district, Syniak village (Khitsova, 1976).
19. *Sarcophila latifrons* (Fallén, 1817). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a): Irshava district, Borzhava locality (Verves & Khrokalo, 2018).
20. *Wohlfahrtia magnifica* (Schiner, 1862). Zakarpattia (Verves & Khrokalo, 2014a).
21. *W. meigeni* (Schiner, 1862). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014a).
22. *Sarcotachinella sinuata* (Meigen, 1826). Zakarpattia (Verves, 1998): Rakhiv town (Verves, 1974).
23. *Blaesoxipha grylloctona* Löw, 1861. Zakarpattia: Irshava district, Borzhava locality (Verves & Khrokalo, 2014b, and present data).
24. *B. laticornis* (Meigen, 1826). Zakarpattia (Verves, 1998): Irshava district, Borzhava locality (Verves & Khrokalo, 2018); Rakhiv town (Verves, 1974).
25. *B. redempta* (Pandellé, 1896). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Irshava district, Borzhava locality (22); Mezhygiria district, Kolochava village (Verves & Khrokalo, 2014b); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
26. *B. ungulata* (Pandellé, 1896). Zakarpattia: Irshava district, Borzhava locality (present data). Firstly recorded for Ukrainian Zakarpattia.
27. *Servaisia* (s. str.) *erythrura* (Meigen, 1826). Zakarpattia (Verves, 1998).
28. *S. (s. str.) rossica* (Villeneuve, 1912). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Irshava district, Borzhava locality (present data); Uzhgorod City (Moskaletz, 1960).
29. *Ravinia pernix* (Harris, 1780). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Irshava district, Borzhava locality (present data); Mizhgyria district,

- Kolochava village (Verves & Khrokalo, 2014b); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
30. *Helicophagella* (s. str.) *agnata* (Rondani, 1860). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Irshava district, Borzhava locality (Verves & Khrokalo, 2018).
  31. *H.* (s. str.) *crassimargo* (Pandellé, 1896). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974).
  32. *H.* (s. str.) *noverca* (Rondani, 1860). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Irshava district, Borzhava locality (Verves & Khrokalo, 2018, and present data); Uzhgorod District, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  33. *H.* (s. str.) *rosellei* (Böttcher, 1912). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Irshava district, Borzhava locality (present data); Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b).
  34. *H.* (*Parabellieria*) *melanura* (Meigen, 1826). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Irshava district, Borzhava locality (Verves & Khrokalo, 2018, and present data); Uzhgorod City (Moskaletz, 1960); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  35. *Heteronychia* (s. str.) *consanguinea* (Rondani, 1860). Zakarpattia: Mukacheve district, Syniak village (Khitzova, 1976).
  36. *H.* (s. str.) *depressifrons* (Zetterstedt, 1845). Zakarpattia (Verves, 1998): Irshava district, Borzhava locality (Verves & Khrokalo, 2018, and present data); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  37. *H.* (s. str.) *dissimilis* (Meigen, 1826). Zakarpattia (Verves, 1998): Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b); Rakhiv town (Verves, 1974).
  38. *H.* (s. str.) *haemorrhoea* (Meigen, 1826). Zakarpattia (Verves, 1998): Irshava district, Borzhava locality (Verves & Khrokalo, 2018).
  39. *H.* (s. str.) *haemorrhoides* (Böttcher, 1913). Zakarpattia (Verves, 1998): Irshava district, Borzhava locality (Verves & Khrokalo, 2018).
  40. *H.* (s. str.) *proxima* (Rondani, 1860). Zakarpattia (Verves, 1998): Irshava district, Borzhava locality (Verves & Khrokalo, 2018, and present data); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  41. *H.* (s. str.) *rohndendorfi* (Povolný & Slamečková, 1959). Zakarpattia (Verves, 1998).
  42. *H.* (s. str.) *rohndendorfi* Mihályi, 1975. Zakarpattia (Verves, 1998): Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b).
  43. *H.* (s. str.) *schineri* (Bezzi, 1891). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974).
  44. *H.* (s. str.) *vagans* (Meigen, 1826). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Irshava district, Borzhava locality (Verves & Khrokalo, 2018, and present data).
  45. *Karovia* *hirticus* (Pandellé, 1896). Zakarpattia (Verves, 1998): Irshava district, Borzhava locality (Verves & Khrokalo, 2018); Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b).
  46. *Bellieriomima* *subulata* (Pandellé, 1896). (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Irshava district, Borzhava locality (Verves & Khrokalo, 2018, and present data).
  47. *Krameromyia* *anaces* (Walker, 1849). Zakarpattia (Verves, 1998).
  48. *Myorhina* (*Mehria*) *nemoralis* (Kramer, 1908). Zakarpattia (Verves, 1998).
  49. *M.* (s. str.) *lunigera* (Böttcher, 1914). Zakarpattia (Verves, 1998): Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b).
  50. *M.* (s. str.) *nigriventris* (Meigen, 1826). Zakarpattia (Verves, 1998).
  51. *M.* (s. str.) *soror* (Rondani, 1860). Zakarpattia (Verves, 1998).
  52. *Sarina* *sempunctata* (Fabricius, 1805). Zakarpattia (Verves, 1998).
  53. *Thyrsoenema* *incisilobata* (Pandellé, 1896). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b); Uzhgorod (Verves, 1974); Uzhgorod district, Nyzhne Solotvyno village

- (Verves & Khrokalo, 2014b); Velyko-Berezna District: Vyshka village (Verves & Khrokalo, 2014b).
55. *T. kentejana* (Rohdendorf, 1937). Zakarpattia (Verves, 1998): Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b).
  56. *Bercaea africa* (Wiedemann, 1824). Zakarpattia (Verves, 1998): Uzhgorod City (Moskaletz, 1960).
  57. *Liopygia (Thomsonea) argyrostoma* (Robineau-Desvoidy, 1830). Zakarpattia (Verves, 1998; Verves & Khrokalo, 2014b): Uzhgorod City (Moskaletz, 1960).
  58. *L. (Varirosellea) uliginosa* (Kramer, 1908). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974).
  59. *Liosarcophaga* (s. str.) *emdeni* (Rohdendorf, 1969). Zakarpattia (Verves, 1998): Mukacheve district, Syniak village (Khitzova, 1976); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  60. *L.* (s. str.) *harpax* (Pandellé, 1896). Zakarpattia (Logoida, 1976; Verves, 1998): Berehove district, Rafainove village (Staněk, 1974).
  61. *L.* (s. str.) *portschinskyi* (Rohdendorf, 1937). Zakarpattia (Verves, 1998).
  62. *L.* (s. str.) *tuberosa* (Pandellé, 1896). Zakarpattia (Logoida, 1976; Verves, 1998): Mukacheve district, Syniak village (Khitzova, 1976).
  63. *L. (Pandelleisca) similis* (Meade, 1876). Zakarpattia (Verves, 1998): Mizhgyria District, Kolochava village (Verves & Khrokalo, 2014b); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  64. *Parasarcophaga* (s. str.) *albiceps* (Meigen, 1826). Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Mukacheve district, Syniak village (Khitzova, 1976); Uzhgorod City (Moskaletz, 1960); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  65. *Robineauella* (s. str.) *caerulescens* (Zetterstedt, 1838). Zakarpattia (Verves, 1998): Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  66. *Kramerea schuetzei* (Kramer, 1909). Zakarpattia (Verves, 1998; Xue et al., 2011): Berehove district, Rafainove village (Staněk, 1974); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  67. *Rosellea atratrix* (Pandellé, 1896)<sup>3</sup>. Zakarpattia (Verves, 1998, Xue et al., 2011): Berehove district, Rafainove village (Staněk, 1974); Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b); Mukacheve district, Syniak village (Khitzova, 1976); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  68. *Sarcophaga bachmayeri* (Lehrer, 1978). Zakarpattia (Povolný & Verves, 1986; Verves, 1998): Perehyn district, Turyi Remety village (Verves & Khrokalo, 2014b); Rakhiv town (Verves & Khrokalo, 2014b); Velyko-Berezny town (Verves & Khrokalo, 2014b).
  69. *S. carnaria* (Linnaeus, 1758). Zakarpattia (Verves, 1998): Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b); Uzhgorod District, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  70. *S. disputata* Lehrer, 1967. Zakarpattia: Uzhgorod district, Nyzhne Solotvyno village (Verves & Radchenko, 2017).
  71. *S. hennigi* Lehrer, 1978. Zakarpattia: Uzhgorod District, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  72. *S. lehmanni* Müller, 1922. Zakarpattia (Verves, 1998): Berehove city (Verves, 1974); Berehove district, Rafainove village (Staněk, 1974); Uzhgorod City (Verves, 1974); Uzhgorod district, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).
  73. *S. moldavica* Rohdendorf, 1937. Zakarpattia (Povolný & Verves, 1986; Verves, 1998): Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b); Mukacheve district, Syniak village (Khitzova, 1976); Putila district, Shepit village (Khitzova, 1976).
  74. *S. mouchajosefi* Lehrer, 1978 Zakarpattia: Rakhiv district (Verves & Khrokalo, 2014b).
  75. *S. schusteri* Lehrer, 1959. Zakarpattia (Verves, 1998): Mizhgyria district, Kolochava village (Verves & Khrokalo, 2014b); Uzhgorod District, Nyzhne Solotvyno village (Verves & Khrokalo, 2014b).

<sup>3</sup> Data "Zakarpattia: Pivtzy" (Verves, 1974) really belongs to Pivtzy village (Chernigiv region).

76. *S. subvicina* Rohdendorf, 1937. Zakarpattia (Verves, 1998): Berehove district, Rafainove village (Staněk, 1974); Mizhgyrya district, Kolochava village (Verves & Khrokalo, 2014b); Mukacheve district, Syniak village (Khitova, 1976); Uzhgorod City (Moskaletz, 1960).
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## Results

One species (*Blaesoxipha ungulata*) is firstly recorded for Ukrainian Zakarpattia, and 11 species (*Metopia argentata*, *M. argyrocephala*, *M. grandii*, *Brachicoma devia*, *Blaesoxipha ungulata*, *Servaisia rossica*, *Ravinia pernix*, *Helicophagella rosellei*, *Myorhina soror*, *Robineauella caerulea*, and *Sarcophaga lehmanni*) are firstly registered in Borzhava locality. 78 species known from Ukrainian Zakarpattia present not less than 70-80% of distinct species list of this region. Thus, regional fauna is need of future investigations.

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**Table 1** - List of Sarcophagidae, collected in Borzhava locality in 2016 and 2018.

№	Species	Specimens		
		2016	2018	sum
1	<i>Macronychia (Moschusa) polyodon</i> (Meigen, 1824)	2	-	2
2	<i>Senotainia</i> (s. str.) <i>conica</i> (Fallén, 1810)	1	-	1
3	<i>Amobia signata</i> (Meigen, 1824)	1	11	12
4	<i>Miltogramma brevipila</i> Villeneuve, 1911	1	-	1
5	<i>Metopia argentata</i> Macquart, 1850	-	2	2
6	<i>M. argyrocephala</i> Meigen, 1824	-	3	3
7	<i>M. campestris</i> (Fallén, 1810)	1	-	1
8	<i>M. grandii</i> Venturi, 1953	-	1	1
9	<i>Brachicoma devia</i> (Fallén, 1820)	-	3	3
10	<i>Sarcophila latifrons</i> (Fallén, 1817)	1	-	1
11	<i>Blaesoxipha grylloctona</i> Löw, 1861	13	5	18
12	<i>B. laticornis</i> (Meigen, 1826)	1	-	1
13	<i>B. redempta</i> (Pandellé, 1896)	6	-	6
14	<i>B. unguata</i> (Pandellé, 1896)	-	1	1
15	<i>Servaisia</i> (s. str.) <i>rossica</i> (Villeneuve, 1912)	-	1	1
16	<i>Ravinia pernix</i> (Harris, 1780)	-	4	4
17	<i>Helicophagella (Parabellieria) melanura</i> (Meigen, 1826)	6	3	9
18	<i>H.</i> (s. str.) <i>agnata</i> (Rondani, 1860)	2	-	2
19	<i>H.</i> (s. str.) <i>noverca</i> (Rondani, 1860)	23	10	33
20	<i>H.</i> (s. str.) <i>rosellei</i> (Böttcher, 1912)	-	1	1
21	<i>Heteronychia</i> (s. str.) <i>depressifrons</i> (Zetterstedt, 1835)	4	3	7
22	<i>H.</i> (s. str.) <i>haemorrhoea</i> (Meigen, 1826)	2	-	2
23	<i>H.</i> (s. str.) <i>haemorrhoides</i> (Böttcher, 1913)	1	-	1
24	<i>H.</i> (s. str.) <i>proxima</i> (Rondani, 1860)	10	3	13
25	<i>H.</i> (s. str.) <i>vagans</i> (Meigen, 1826)	4	10	14
26	<i>Karovia hirticrus</i> (Pandellé, 1896)	1	-	1
27	<i>Bellieriomima subulata</i> (Pandellé, 1896)	9	11	20
28	<i>Myorhina</i> (s. str.) <i>nigriventris</i> (Meigen, 1826)	1	-	1
29	<i>M.</i> (s. str.) <i>soror</i> (Rondani, 1860)	-	1	1
30	<i>Thyrsoenema incisilobata</i> (Pandellé, 1896)	28	109	137
31	<i>Bercaea africa</i> (Wiedemann, 1824)	1	-	1
32	<i>Liopygia (Thomsonea) argyrostoma</i> (Robineau-Desvoidy, 1830)	4	8	12
33	<i>Liosarcophaga</i> (s. str.) <i>emdeni</i> (Rohdendorf, 1969)	15	2	17
34	<i>L.</i> (s. str.) <i>tuberosa</i> (Pandellé, 1896)	4	2	6
35	<i>L. (Pandelleisca) similis</i> (Meade, 1876)	24	15	39
36	<i>Parasarcophaga</i> (s. str.) <i>albiceps</i> (Meigen, 1826)	2	5	7
37	<i>Robineauella</i> (s. str.) <i>caerulescens</i> (Zetterstedt, 1838)	-	2	2
38	<i>Rosellea aratrix</i> (Pandellé, 1896)	40	13	53
39	<i>Sarcophaga carnaria</i> (Linnaeus, 1758)	88	82	170
40	<i>S. lehmanni</i> Müller, 1922	-	1	1
41	<i>S. subvicina</i> Rohdendorf, 1937	1	1	2
42	<i>S. variegata</i> (Scopoli, 1763)	160	270	430
<b>Sum</b>		<b>456</b>	<b>583</b>	<b>1039</b>

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